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ABSTRACT

A study of silent and filled pauses in second language speech analyzes (1) which types of pause are produced, (2) which are the functions of non-juncture pauses, (3) whether pauses co-occur with other hesitation phenomena, and (4) whether the occurrence of pauses is associated with second language proficiency. Subjects were 15 intermediate and advanced learners of English as a second language, all native Spanish-speaking university students. Each completed a background questionnaire and told a single story in English, which was recorded and transcribed for analysis. Silent and filled pauses that were determined to be hesitation pauses, and not occurring at grammatical junctures, were identified. About two-thirds of those pauses were silent; the remainder were filled. Wide variation was found in the individuals' use of filled pauses, and less in the use of silent pauses. Lexical, morphological, and planning pauses were found, with each distributed very differently between silent and filled pauses. The most common hesitation phenomena were repetition, self-correction, and reformulation, and more of these strategies were used with silent pauses than with filled pauses. More pauses and more filled pauses were used by more advanced learners. Implications for second language learning and teaching are discussed briefly. (Contains 13 references.) (MSE)

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PAUSES AND COMMUNICATION STRATEGIES IN SECOND LANGUAGE SPEECH

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The study of pauses in speech production is a central part of the study of speech fluency that has not received enough attention in the field of second language acquisition. Nevertheless, pauses and other hesitation phenomena have been reported to be one of the greatest impediments to intelligibility in second language speech and have been associated with negative evaluations of speech performance (Albrechsten, Henriksen and Faerch, 1980; Olynik, d'Anglejan & Sankoff, 1987).

The study of pauses and other hesitation phenomena in speech production has a long tradition in psycholinguistics and these phenomena have been analysed as evidence to infer processes in language planning and to signal overloading of the production system (Golman-Eisler, 1968, 1972). Nevertheless, as Garman (1990) observes, speakers need not pause every time they plan and not all pauses can be interpreted as evidence of language planning.

Pauses can have several functions: : i) a physiological function to allow the speaker to breath; ii) a cognitive function to allow the speaker to plan his/her speech and iii) a communicative function, to help the listener to identify demarcations in the speech stream. Psycholinguistic research (Goldman-Eisler, 1968, 1972; Christenfeld et al., 1991; Rochester, 1973) has mainly explored the cognitive functions of pauses and it has been observed that pauses are indications of time out while the speaker searches for the next linguistic element or the next idea. It has also been pointed out that the occurrence of pauses may be linked to the difficulty of the task or the nature of the subject matter (Schachter et al., 1991) and that pauses and other hesitations are symptoms of difficulties encountered in processing and

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planning (Kenny, 1996). From an interactional point of view, pauses can also be communicative devices used in oral interaction to establish speakers' turns.

According to formal criteria silent and filled pauses can be distinguished. Silent pauses correspond to silent periods between vocalizations (including breath pauses) and filled pauses to interruptions of speech flow by non-lexical sounds such as *ah, mm, er, erm, uh, um*. From a functional perspective, Goldman-Eisler suggested (1968) that filled and silent pauses reflect different internal processes: filled pauses reflect affective states such as anxiety and silent pauses correspond to the cognitive difficulty of the task involved. Other researchers (Maclay and Osgood, 1959) indicate that filled pauses serve a floor-holding function, that is, they tell the listener that the speaker has more to say. However, the fact that filled pauses are very common in lectures with no possibility of interruption seems to contradict this hypothesis. In fact, the distinction between filled and silent pauses is certainly more clear-cut from a formal than from a functional point of view because both types of pauses tend to occur in the same positions (Garman, 1990). Pauses have also been divided into juncture (or fluent) pauses and non-juncture (disfluent) pauses. Juncture pauses mark the boundaries between syntactic units such as the phrase, clause and sentence while non-juncture or hesitation pauses are those 'judged to be abnormal for the speaker yielding the utterance' (Kenny 1996, 38).

Non-juncture pauses and other hesitation phenomena (repetitions, self-corrections, reformulations) are very likely to occur in second language speech because speakers not only have to search for the next idea but also for the next linguistic element(s) in a language in which they present limited proficiency. Furthermore, second language learners can also have problems to master the language-specific use of pauses and hesitation phenomena.

This research study aims at analysing the occurence of silent and filled pauses in second language speech and posits the following research questions: i) Which types of pauses

are produced in second language speech? ii) Which are the functions of non-juncture pauses in second language speech? iii) Do pauses co-occur with other hesitation phenomena? iv) Is the occurrence of pauses associated with language proficiency?

METHODOLOGY

Participants. Participants were 15 intermediate and advanced learners of English, who were undergraduates at the University of the Basque Country (Spain). All participantes had Spanish as their first language.

Testing procedures. All the participants were asked to complete a background questionnaire and to tell the story 'Frog, where are you? in English (Mayer, 1969; see also Berman & Slobin, 1994). The recordings were made in a Phonetics laboratory and the participants were not given any opportunities for interaction.

After the tapes were transcribed, the productions were coded while listening to the tapes. Only those silent and filled pauses which were judged by two evaluators to be hesitation pauses and did not occur at grammatical junctures were considered. All the speech productions were digitalized and silent non-juncture pauses with a duration of 200 msec and over were measured for length from signal-spectra and signal-waves. Even though all filled pauses were coded some filled pauses were produced between sentences and their function was to hold the floor. These pauses were considered juncture pauses and were not included in the analyses. The codification of non-juncture pauses included the type of pauses (silent vs. filled), the length of the silent pauses, their distribution in the sentences, the hesitation

markers used in the case of filled pauses ('um', 'eh', 'ah') , and their association with communication difficulties (self-correction, reformulation, repetition).

RESULTS

In order to answer our first research question a frequency count of the silent and filled pauses used by all subjects was done. The total number of non-juncture pauses was 1085 and 64% of these pauses were silent and 36% were filled.

The most common filler used was 'eh' which is the most common filler in Spanish. The data indicate that there are very important individual differences and the range regarding the use of filled pauses is very wide and goes from 4% of the total number of pauses to 74.5%.

Individual differences were also observed in the case of silent pauses and they ranged from 25.5% of the total number of pauses that occurred in an individual's production to 96%. Individual variation was also observed when the length of silent pauses was measured. The length of the pauses ranged from 205 msec to 11.569 msec but the maximum length for some subjects was 1180 msec or 1223 msec and for others 10,689 or 11,569 msec. The following table includes more detailed information about the distribution of pauses according to their length:

Table 1	LENGTH OF SILENT PAUSES		
	NUMBER OF SUBJECTS	PERCENTAGE OF PAUSES	INDIVIDUAL VARIATION
200-1000	15 (100%)	70%	39%-96%
1001-2000	15 (100%)	21%	4%-39%
2001-4000	6 (40%)	7%	10%-18%
4001-	6 (40%)	2%	1.5%-7%

The data indicate that shorter pauses (between 200-1000 msec) occur in the speech of all subjects but pauses that were longer than 2001 msec only occur in the speech of some subjects. Most pauses (70%) are shorter than 1000 and there are very few pauses which are longer than 2001 msec. The data also indicate that individual variation is important because different individuals present different percentages of pauses in each of the categories established according to length.

In order to answer the second research question the pauses were divided into three categories: i) lexical ii) morphological iii) planning pauses. Lexical pauses function as indicators of problems in lexical retrieval and only pauses that occur just before a single lexical item were included in this category. Morphological pauses function as indicators of problems at the morphological level and were followed by other hesitation markers (repetitions, self corrections) that indicated problems at the morphological level. Planning pauses were all those non-fluent pauses that could not be included in the previous categories.

Lexical pauses

1. ... he gets up and he **ah dresses** (4)
2. ... another animal **of the #1760 of the wood** (8)

Morphological pauses

3. the dog **erm find a #558 finds** a (20)
4. and **bi #1200 bit #474 bite** his #465 nose (1)

Planning pauses

5. The boy **eh goes to the window and then screams**.. (11)
6. the boy **#1867 goes on looking for his frog** (36)

The distribution of silent and filled pauses according to their function is presented in the following table:

Table 2 FUNCTIONS OF SILENT AND FILLED PAUSES		
	SILENT PAUSES	FILLED PAUSES
LEXICAL	36%	26%
MORPHOLOGICAL	5%	1%
PLANNING	59%	73%

The data indicate that both silent and filled pauses can have the same functions and that most pauses are included in the general 'planning' function. The data also indicate that there are more silent pauses than filled pauses that can be classified as 'lexical' pauses.

In order to answer the third research question the co-occurence of pauses and other hesitation (or repair) phenomena was analysed. The most common hesitation phenomena were repetition, self correction and reformulation:

Repetition
7. the frog go out go the bottle and **go to the to the eh go go the the eh to the trees** (37)
8. ... because **he had #687 he had** caught **a #966 a** frog (19)

Self-correction
9. the bees are eh intending **to kick eh to pick it** (35)
10. the dog **#837 were #1266 was playing** with the bees (36)

Reformulation
11. **... there are eh the dog is** .. (9)
12 ..**they come #1330 into they #2211 go out #1051** the water (20)

The data in table 3 indicates the relationship between pauses and other phenomena:

Table 3 PAUSES AND OTHER STRATEGIES		
	SILENT PAUSES	FILLED PAUSES
PAUSES AND OTHER HESITATIONS	54%	23%
ONLY PAUSES	46%	77%

The data indicate that more strategies are used in the case of silent pauses (54%) that in the case of filled pauses (23%).

In order to answer the fourth research question the participants were divided into three groups (high, intermediate, low) according to their proficiency in English as evaluated from their speech and confirmed by the self-evaluation of their proficiency in English relative to native speakers and other classmates. The occurrence of pauses in the speech of the groups with the highest and the lowest scores were compared and the results can be seen in the following table:

Table 4	PAUSES BY LOW AND HIGH PROFICIENCY STUDENTS				
	TOTAL	SILENT	FILLED	SILENT STRATEGIES	FILLED STRATEGIES
HIGH PROFICIENCY	101	46%	53%	38%	22%
LOW PROFICIENCY	86	69%	31%	62%	40%

The data indicate that a larger number of pauses occur in the speech produced by the subjects who had the highest scores and these subjects also use more filled pauses than the subjects with the lowest scores in English proficiency. The data also indicate that the use of other hesitation phenomena is more common in the case of silent pauses but it can also be observed that there are differences between the two groups. Subjects in the 'low proficiency' group use more hesitation phenomena than 'high proficient' subjects both in the case of filled and silent pauses.

DISCUSSION

The results indicate that non-juncture pauses and hesitations are very frequent in second language oral production and they could imply that second language learners face a large number of planning and execution problems. The results also indicate that there are very

important individual differences and the speech produced by some learners is characterized by a large number of pauses and hesitations while other learners present a different linguistic behavior. Learners also have different preferences for the use of filled or silent pauses.

The results also indicate that both filled and silent pauses are used when learners face lexical, morphological and planning difficulties but filled pauses are more common in the case of planning difficulties. According to the codificatión used in this study only those pauses that occur in association with self-corrections, repetitions or reformulations affecting a morphological element were considered morphological and it is possible that some pauses associated with morphological difficulties have been included in the general category 'plannning'. Nevertheless, these results seem to indicate that learners of English face fewer problems at the morphological level than learners of languages with a highly complex morphology such as Basque (Perales & Cenoz, 1996) when the same methodology has been used for the classification of pauses.

Most silent pauses co-occur with other hesitation phenomena but most filled pauses do not co-occur with self-corrections, reformulations or repetitions. These data seem to indicate that filled pauses are used as repair devices by themselves while silent pauses tend to precede other repair devices. It seems that when learners face planning and execution difficulties silent pauses are not enough and some type of vocalization is needed.

The data also indicate that the total number of pauses that occurred in the learners' oral production is not associated with low proficiency in the second language but it has been observed that subjects who presented lower proficiency used more strategies in combination with pauses. These findings could indicate that high proficiency learners may just need time to retrieve the right information while learners who present lower proficiency need to vocalize different options.

Although more work on the distribution of pauses in second language production is needed the results of this study indicate that pauses and hesitation phenomena can shed light on the process of second language acquisition. In fact, pauses and hesitation phenomena can indicate difficulties in language planification and execution and they can be a cue to infer the psycholinguistic processes taking place in second language production. The study of pauses and hesitation phenomena also has teaching implications because second language learners have to learn how to be silent and how to hesitate as part of their strategic competence.

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